REMARKS

The Office Action dated November 10, 2010 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

In accordance with the foregoing, claims 1, 9, 17, and 18 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Support for the amended features may be found on page 8, fourth paragraph and fifth paragraph, of the Specification and FIGS. 2 and 3 and corresponding description. No new matter is being presented, and approval and entry are respectfully requested.

Claims 1-18 are pending and under consideration.

REJECTION UNDER 35 U.S.C. § 103:

In the Office Action, claims 1, 4, 7-9, 12, and 15-18 were rejected under 35 U.S.C. § 102 as being anticipated by Parsa et al. (U.S. Patent No. 6,643,318) ("Parsa") and further in view of U.S. Patent Publication No. 2002/0034191 to Shattil ("Shattil"). The Office Action took the position that Parsa and Shattil describe all the recitations of independent claims 1, 9, 17, and 18 and related dependent claims. This rejection is traversed and reconsideration is requested.

Claim 1, upon which claims 2-8 are dependent, recites a method of initiating a telecommunications uplink from a mobile terminal to a telecommunications network, the

mobile terminal having a transmission chain including a baseband stage, a power amplification stage and an antenna. The method includes transmitting a preamble signal from the mobile terminal at a first time, the preamble signal being transmitted in accordance with at least two variable transmission parameters of the mobile terminal. The method includes determining whether a base station has successfully received the preamble signal. In the event it is not determined that a base station has successfully received the preamble signal, the method includes changing at least one of the transmission parameters, and repeating the transmitting of the preamble signal and the determining whether a base station has successfully received the preamble signal at a time later than the first time. Each time it is not determined that a base station has successfully received the preamble signal, the changing at least one of the transmission parameters comprises varying a transmission parameter of the preamble signal that is different from a transmission parameter that was varied in the previous transmission. The changing at least one of the transmission parameters results in an alteration of a signal diversity of one or more preambles as received by the base station at the later time.

Claim 9, upon which claims 10-16 are dependent, recites an apparatus including a transmission chain including a baseband stage, a power amplification stage and an antenna and a transmitter configured to transmit a preamble signal in accordance with at least two variable transmission parameters of the apparatus at a first time. The apparatus includes a determiner configured to determine whether a base station has successfully

received the preamble signal. In the event it is not determined that a base station has successfully received the preamble signal, the apparatus includes a changing unit is configured to change at least one of the transmission parameters, and repeat the transmission of the preamble signal and the determination of whether the base station has successfully received the preamble signal at a time later than the first time. Each time it is not determined that a base station has successfully received the preamble signal, the changing of the at least one of the transmission parameters by the changing unit comprises varying a transmission parameter of the preamble signal that is different from a transmission parameter varied in the previous transmission. The changing of the at least one of the transmission parameters by the changing unit results in an alteration of a signal diversity of one or more subsequent preambles as received by the base station at the later time.

Independent claim 17 recites a computer-readable medium encoded with a computer program, the computer program configured to control a processor to perform operations including transmitting a preamble signal from a mobile terminal at a first time, the preamble signal being transmitted in accordance with at least two variable transmission parameters of the mobile terminal. The computer program is also configured to control a processor to perform operations including determining whether a base station has successfully received the preamble signal, and in the event it is not determined that a base station has successfully received the preamble signal, changing at

least one of the transmission parameters, and repeating the transmitting of the preamble signal and the determining whether a base station has successfully received the preamble signal at a time later than the first time. Each time it is not determined that a base station has successfully received the preamble signal, the changing at least one of the transmission parameters comprises varying a transmission parameter of the preamble signal that is different from a transmission parameter that was varied in the previous transmission. The changing at least one of the transmission parameters results in an alteration of a signal diversity of one or more preambles as received by the base station at the later time.

Independent claim 18 recites an apparatus including a transmission chain including a baseband stage, a power amplification stage and an antenna, and transmitting means for transmitting a preamble signal in accordance with at least two transmission parameters of the apparatus at a first time. The apparatus includes determining means for determining whether a base station has successfully received the preamble signal. In the event it is not determined that a base station has successfully received the preamble signal, the apparatus includes changing means for changing at least one of the transmission parameters, and repeating the transmission of the preamble signal and the determination of whether the base station has successfully received the preamble signal at a time later than the first time. Each time it is not determined that a base station has successfully received the preamble signal, the changing of the at least one of the

transmission parameters by the changing means comprises varying a transmission parameter of the preamble signal that is different from a transmission parameter varied in the previous transmission. The changing of the at least one of the transmission parameters by the changing unit results in an alteration of a signal diversity of one or more subsequent preambles as received by the base station at the later time.

There are distinct advantages associated with the feature of changing the transmission parameter that is varied between successive preamble transmissions, when it is not determined that a base station has successfully received the preamble signal. As set out in the third, fourth and fifth paragraphs of page 10 of the Specification it is stated that "the main advantage arising from the preferred embodiment is an on average shorter RACH procedure. This will speed up the call setup process and cause smaller delays for user data transmission on RACH and CPCH. This means that the transmission time that is needed to transmit small data packets via uplink RACH and CPCH is reduced. This is of particular importance where internet protocol (IP) addresses are transmitted via RACH (and CPCH)."

Embodiments of the present invention are advantageous over systems that simply increase power between successive preamble signals because the embodiments of the present invention result in a reduction of the average transmission power of a UE and, therefore, cause less interference to other users of the network (see penultimate paragraph of page 10 of the description). Embodiments of the present invention quickly ascertain

how best to achieve an uplink to a base station instead of simply increasing transmit power which could ultimately prove unsuccessful and therefore unnecessarily result in increased interference for users in the network.

As will be discussed below, Parsa and Shattil, individually or combined, fail to disclose or suggest all of the elements of the claims, and therefore fails to provide the advantages and features discussed above.

Parsa describes a hybrid DSMA-CR/CDMA method and apparatus accommodating bursty packet data traffic in an optimum manner. The hybrid DSMA-CR/CDMA method provides a proactive approach to avoid collision by having the base station broadcast the availability and available data rates for each of its channels or for each group of its channels. The mobile station can use the broadcast information to select an idle channel with sufficient data rate before its transmission, instead of waiting for the base station to resolve the collision. The method also allows priority schemes (Parsa, column 2, lines 16-28).

At a base station, the method of Parsa involves broadcasting, on a periodic or non-periodic basis, availability related status information of one or more of the channels allocated to the base station. Based on the broadcast status information, the mobile station selects an idle channel (Parsa, column 2, lines 53-64). Following channel selection, the mobile station starts transmission of a series of access preambles. Each preamble contains a signature selected from a set of predefined signatures used for

communications with the base station. Typically, the preamble signature corresponds to the spreading code and/or the scrambling code used by the network to define the selected logical channel at the physical layer of the CDMA network. The mobile station transmits the preambles, at well-selected time intervals and at increasing power levels. The mobile station stops its transmission of the access preambles when the access preamble has been picked up and detected by the base station, the base station has responded with an acknowledgment AP-AICH, and the mobile station has also successfully received the AP-AICH. Alternatively, the mobile station ceases its access preamble transmissions if the mobile station has transmitted the maximum allowed number of access preambles M_{AP} (Parsa, column 2, line 65, to column 3, line 14).

Applicants respectfully submit that Parsa fails to disclose or suggest all of the elements of the present claims. For example, Parsa fails to disclose or suggest, at least, "wherein each time it is not determined that a base station has successfully received the preamble signal, the changing at least one of the transmission parameters comprises varying a transmission parameter of the preamble signal that is different from a transmission parameter varied in the previous transmission," as recited in independent claim 1 and similarly recited in independent claims 9 and 17-18. Also, Parsa does not teach or suggest that the changing of at least one of the transmission parameters results in an alteration of the signal diversity of one or more preambles as received by the base station at the later time as in the present claims. Instead, Parsa provides that if that

preamble is unsuccessful in being picked up by the base station, then the power at which the preamble is transmitted is increased. See column 2, line 65, to column 3, line 9, and column 15, lines 13-32. So, in Parsa the value of the same parameter (i.e. the power) is modified, but the actual parameter being modified is not changed. Parsa is silent as to teaching an alteration of signal diversity of one or more of the preambles described therein. As further clarified by the amendments in independent claims 1, 9, and 17-18, the signal diversity comprises multipath diversity. Parsa does not anticipate such claimed recitations.

Furthermore, the Office Action cited column 15, lines 13-32 of Parsa as allegedly disclosing the alteration of the signal diversity recited in the independent claims. However, Applicants submit that Parsa does not disclose that "changing at least one of the transmission parameters results in an alteration of a signal diversity of one or more preambles as received by the base station at the later time," as recited in independent claims 1, 9, and 17-18. In the referred portion of Parsa, this portion simply provides that if the mobile station does not detect any acquisition indicator (A1) as an acknowledgement corresponding to the selected signature in the downlink access slot corresponding to the selected uplink access slot, the mobile station selects the next uplink access slot from among the access slots in the CPCH-AP sub-channel group, increases the preamble transmission power, retransmits access preamble using new parameters, decreases the preamble retransmission counter, and the mobile station aborts the access

attempt when the preamble retransmission counter is less than 0. Such description is devoid of any teaching or suggestion providing an alteration of the signal diversity of one or more preambles as received by the base station at a later time. Also, such description of Parsa does not provide that the signal diversity comprises multipath diversity as in the present independent claims.

Applicants respectfully submit that the cited passages of Parsa bear no relation to the present invention. The feature of changing the transmission parameter results in an alteration of the signal diversity of one or more preambles is not disclosed in Parsa. Therefore, it follows that Parsa also fails to disclose the feature of the signal diversity including multipath when the signal diversity comprises multipath diversity.

Furthermore, Parsa does not disclose changing signal diversity in subsequent transmissions of preambles in anything apart from the power.

Shattil, in turn, is directed to wireless electromagnetic-wave communications, and particularly to interferometry and parallel signal-processing techniques that enhance bandwidth efficiency and reduce complexity of transmitters and receivers. Paragraph [0044] of Shattil generally describes that, throughout history, the quest to understand the universe has focused on discovering the elementary components of the universe. Knowledge of the properties of fundamental elements can provide an understanding of the properties of complex combinations of those elements. From an engineering perspective, the properties of a complex combination of elements are determined by

properties of the elements and the manner in which the elements are combined. Paragraph [0077] of Shattil refers to FIG. 22A, which illustrates a CI transmission system in which a multicarrier generator 220 includes a frequency controller 217 for generating a timing signal that controls the frequency of pulses generated by a pulse generator 218. A periodic timing signal results in the pulse-generator 218 output having uniformly spaced-in-frequency carriers.

Shattil describes that multiple delayed instances of a transmitted signal may be created by transmitting the signal from multiple antennas. This can be used to create a multi-path environment. However Shattil fails to disclose varying different transmission parameters between successive preamble signals in order that a preamble signal is successfully received at a base station. Similar to Parsa, Shattil does not teach or suggest that "wherein each time it is not determined that a base station has successfully received the preamble signal, the changing at least one of the transmission parameters comprises varying a transmission parameter of the preamble signal that is different from a transmission parameter that was varied in the previous transmission, and wherein the changing at least one of the transmission parameters results in an alteration of a signal diversity of one or more preambles as received by the base station at the later time," as recited in independent claims 1, 9, and 17-18.

Shattil does not relate to preambles, specifically it does not relate to transmitting successive or a series of preambles, and yet further it does not relate to incorporating any

signal diversity into successive preambles. As said, Shattil merely refers to providing a plurality of carrier signals modulating these carrier signals transmitting the plurality of carrier signals receiving the signal and combining the signals. Even if Shattil is considered, there is no reason why the skilled person would indeed consider introducing signal diversity as claimed into successive preambles.

Thus, Parsa and Shattil, individually or combined, fail to disclose or suggest all of the elements of independent claims 1, 9, and 17-18. Claims 4, 7-8, and 15-16 are dependent upon independent claims 1 and 9, respectively. Accordingly, claims 4, 7-8, and 15-16 should be allowed for at least their dependence upon independent claims 1 and 9, and for the specific limitations recited therein.

REJECTION UNDER 35 U.S.C. § 103:

Claims 2-3, 5-6, 10-11, and 13-14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Parsa and Shattil in view of U.S. Patent No. 7,013,146 to Wang et al. ("Wang"). The Office Action took the position that Parsa and Shattil disclose all of the elements of the claims, with the exception of the transmission chain including at least two antennae, and the transmission parameter determining which of the antennae the preamble is transmitted from. The Office Action then relies upon Wang as allegedly curing this deficiency in Parsa and Shattil. This rejection is respectfully traversed for at least the following reasons.

Applicants note that claims 2-3 and 5-6 are dependent upon independent claim 1 and claims 2-3 and 5-6 are dependent upon independent claim 9. As discussed above, Parsa fails to disclose or suggest all of the elements of independent claims 1 and 9. The description of Parsa and Shattil and the arguments presented above supporting the patentability of independent claims 1 and 9 in view of Parsa and Shattil are incorporated herein.

Wang generally describes a method of transmitting user data from a mobile device to a wireless communication system using adaptive transmission parameters in order to enhance the total data rate of the uplink transmission. The mobile device transmits a RACH message preamble including transmission conditions related data to enable the use of adaptive transmission parameters for the RACH message part (Wang, column 3, lines 8-25). The RACH message preamble is decoded by the base station and allows the base station to estimate the transmission conditions based on the message preamble. In combination with a current network load and estimated transmission conditions, a base station is able to determine suitable adaptive transmission parameters allowed for a mobile device. This adaptive transmission parameter setting is transmitted as an indication message to the mobile device via the AICH. The indication message is received by the mobile device and decoded. The mobile device is now able to transmit the RACH message part using the transmitted adaptive transmission parameter setting to increase the total transmission rate.

Wang describes a "link adaptation is also achievable using adaptive selection of antenna which is for example implemented as multiple input multiple output antenna processing". However, similar to Parsa and Shattil, Wang also does not disclose, "wherein each time it is not determined that a base station has successfully received the preamble signal, the changing at least one of the transmission parameters comprises varying a transmission parameter of the preamble signal that is different from a transmission parameter that was varied in the previous transmission, and wherein the changing at least one of the transmission parameters results in an alteration of a signal diversity of one or more preambles as received by the base station at the later time," as recited in independent claim 1 and similarly recited in independent claim 9. In fact since Wang is concerned with link adaption (i.e. the adaptation of a pre-existing link) and it is not concerned at all with the transmission of preamble signals, i.e. the transmission of signals prior to a link being established.

However, there is no teaching or suggestion given in Wang as to why the features such as phase shifting, directionality of a beam, and frequency band could or even would be altered in **preamble** signals. (Emphasis added) Such features in Wang are applied to completely different types of signals and the preamble signal is a specific in terms of time interval and a very short set of one or more signals. Furthermore, there is no indication as to why the skilled person would wish to change preamble signals on this basis.

Wang focuses on determining suitable adaptive transmission parameters allowed for a mobile device to enable the mobile device to transmit the RACH message part using the transmitted adaptive transmission parameter setting to increase the total transmission rate. However, there is no teaching or suggestion of the signal diversity comprising multipath diversity as recited in independent claims 1 and 9.

Accordingly, the combination of Parsa and Wang fails to disclose or suggest all of the elements of claims 2-3, 5-6, 10-11, and 13-14. In addition, claims 2-3, 5-6, 10-11, and 13-14 should be allowed for at least their dependence upon independent claims 1 and 9, and for the specific limitations recited therein.

CONCLUSION:

In view of the above, Applicants respectfully submit that the claimed invention recites subject matter which is neither disclosed nor suggested in the cited prior art. Applicants further submit that the subject matter is more than sufficient to render the claimed invention unobvious to a person of skill in the art. Applicants therefore respectfully request that each of claims 1-18 be found allowable and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by

telephone, the Applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time.

Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

/Alicia M. Choi/
Alicia M. Choi
Attorney for Applicants
Registration No. 46,621

Customer No. 32294
SQUIRE, SANDERS & DEMPSEY (US) LLP
14th Floor
8000 Towers Crescent Drive
Vienna, Virginia 22182-6212
Telephone: 703-720-7800
Fax: 703-720-7802

AMC:sjm